Cinema Sound™ Series

CSS10

Amplifier/Subwoofer

SERVICE MANUAL

JBL Consumer Products
250 Crossways Park Dr.
Woodbury, New York 11797

Rev0 12/2005

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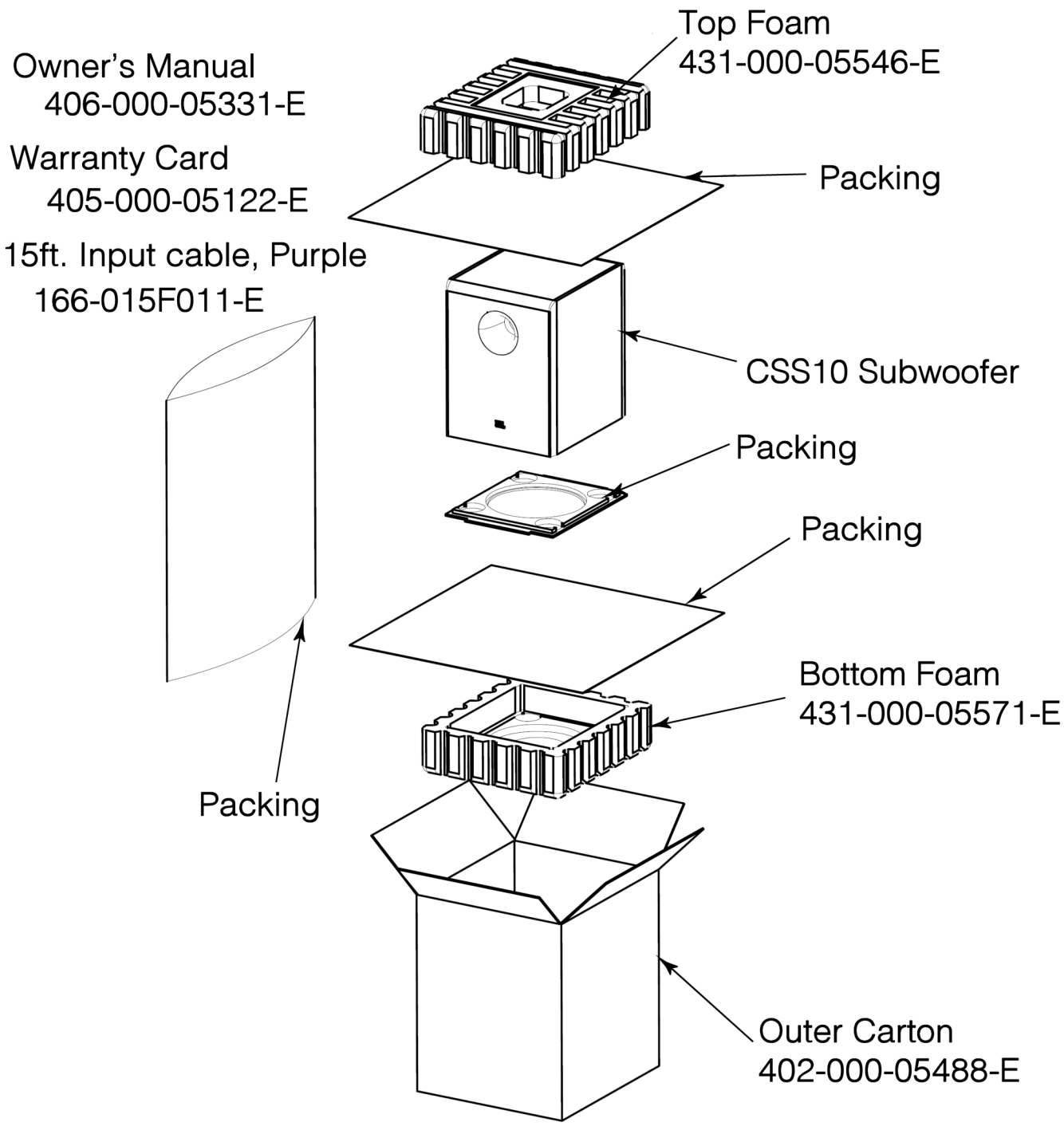
CSS10 BASIC SPECIFICATIONS

Amplifier Power	150 Watts RMS
Frequency Response	27Hz – Low-pass crossover setting at signal source
Low-Frequency Driver	10" (254mm) cone, video-shielded
Input	LFE and preamp level
Dimensions (H x W x D) (including feet)	18-1/4" x 13-1/4" x 16" (464mm x 337mm x 406mm)
Weight	43 lb (19.5kg)

Occasional refinements may be made to existing products without notice but will always meet or exceed original specifications unless otherwise stated

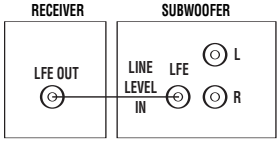
PACKAGING


Top Foam
431-000-05546-E
Owner's Manual
406-000-05331-E
Warranty Card
405-000-05122-E
Packing
15ft. Input cable, Purple
166-015F011-E
CSS10 Subwoofer
Packing
Packing
Bottom Foam
431-000-05571-E
Packing
Outer Carton
402-000-05488-E

CSS10 150W Powered Sub/ Plate Amp					
LINE VOLTAGE	**Yes/No**	**Hi/Lo Line**	**Unit**	**Notes**	
US 120vac/60Hz	Yes	108-132	Vrms	Normal Operation	
EU 230vac/50-60Hz	Yes	207-264	Vrms	Normal operation, MOMS required	
Parameter	**Specification**	**Unit**	**QA Test Limits**	**Conditions**	**Notes**
Amp Section					
Type (Class AB, D, other)	D	D	n/a		
Load Impedance (speaker)	4	Ohms	n/a	Nominal	
Rated Output Power	150	Watts	145	1 input driven	
THD@ Rated Power	0.08	%	1	22K filter	
THD @ 1 Watt	0.1	%	0.5	22K filter	
DC Offset	10	mV-DC	20	@ Speaker Output	
Damping factor	>100	N/A	15	50Hz-4 Ohms load	Measured at amplifier PCB speaker out connector @ power 135 Watts.
Input Sensitivity					
Input Frequency	50	Hz	50	Nominal Freq.	1 input driven
Line Input (L&R)	12	mVrms	±2dB	To 1 Watt	1 input driven
LFE Input	7.63	mVrms	±2dB	To 1 Watt	LFE input driven only
Signal to Noise					
SNR-A-Weighted	100	dBA	85	rel. to rated power	A-Weighting filter
SNR-unweighted	90	dBr	80	rel. to rated power	22K filter
SNR @ 1W-unweighted	60	dBr	55	rel. to 1W Output	22K filter
Residual Noise Floor	1	mVrms	2	Volume @max, using RMS reading DMM/VOM (or A/P)	
Residual Noise Floor	1	mVrms(max)	2	Volume @max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics)	
Input Impedance					
Line input L&R , LFE	>15	K ohms	n/a	Nominal	
Filters					
Left & Right Low Pass fixed	Hz	--	±2dB		
Slope & Q	4th	dB/Octave	n/a		
LFE Low Pass fixed	Hz	--	±2dB		
Slope & Q	2nd	dB/Octave	n/a		
Subsonic filter (HPF)	Hz	--	±2dB		
Slope & Q	2nd	dB/Octave	n/a		
Limiter (yes/no)	YES	--	n/a		
Features					
LFE Input	YES		functional		BW Limited to 500 Hz
Phase Switch (yes/no)	YES	--	functional		
Volume pot Taper (lin/log)	LOG	--	functional		
ATO (Auto-ON)	YES		functional		
Input Configuration					
Line In (L,R)	L ,R	--	functional		RCA inputs: L , R
Line level in LFE	LFE		functional		
Signal Sensing (ATO)					
ATO test Frequency	50	Hz			
ATO Line Level	2	mV	functional	2mV@50Hz into Line Input w/ 1 ch. driven	
ATO Turn-on time	5	ms	functional	Amp connected and AC on, then input signal applied	
Auto Mute/ Turn-OFF Time	15	minutes	functional	T before muting, after signal is removed	Auto turn off time (T) must be 5min > T <15min
Power on Delay time	3	sec.	functional	AC Power Applied	
Transients/Pops					
ATO Transient	5	mV-peak	10	@ Speaker Outputs	
Turn-on Transient	50	mV-peak	100	@ Speaker Outputs	AC Line cycled from OFF to ON
Turn-off Transient	50	mV-peak	100	@ Speaker Outputs	AC Line cycled from ON to OFF
Efficiency					
Stand-by Input Power	14	Watts	16	@ nom. line voltage	Maximum allowable input power under nominal Input voltage and frequency, HOT or COLD operation.

Power Cons.@rated power	240	Watts	250	@ nom. line voltage	150 Watts @ 4 Ohms nominal line voltage
Protection					
Short Circuit Protection	YES	--	functional	Direct short at output	
Thermal Protection	65 deg. C	--	functional	@1/8 max unclipped Power	Temperature rise should not exceed 35K rise
DC Offset Protection	YES	--	functional	DC present at Speaker Out leads	Relay or crowbar (for driver/fire protection)
Line Fuse Rating					
US Version	3.15	Amps		Type-T or Slo Blo, Fuse markings T3.15A, 250V	External fuse with UL/SEMKO rated holder
EU Version	1.6	Amps		Type -T, Low breaking capacity, Fuse markings T1.6AL, 250V	External fuse with UL/SEMKO rated holder

DOLBY® DIGITAL OR DTS® (OR OTHER DIGITAL SURROUND MODE) CONNECTION



Use this installation method for Dolby Digital, DTS or other digital surround processors:

Use the line-level input jack marked "LFE" for the Low-Frequency Effects channel. Connect this jack to the LFE output or subwoofer output on your receiver or amplifier. Connect each speaker to the corresponding speaker terminals on your receiver or amplifier.

Make sure that you have configured your surround sound processor for "Subwoofer On." Also configure your receiver for 5.1-, 6.1- or 7.1-channel operation as appropriate. The front left, front right, center and rear speakers should all be set to "Small." If your receiver allows you to set the crossover frequency between the subwoofer and the main speakers, select 100Hz or the setting that is the closest frequency below it.

DOLBY PRO LOGIC® (NON-DIGITAL) – LINE LEVEL

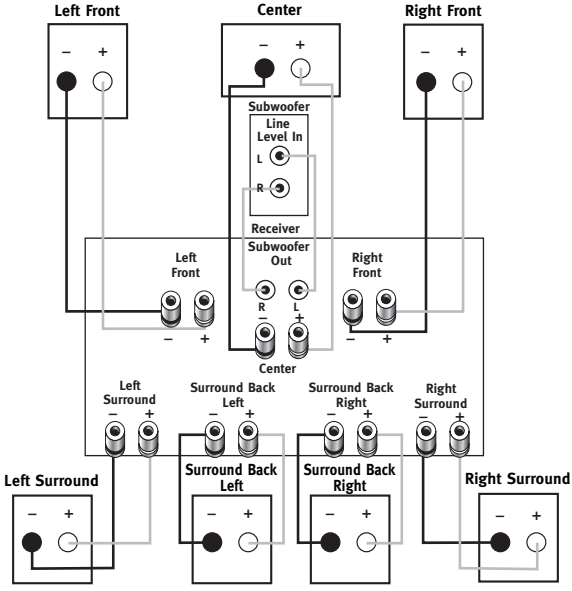
Use this installation method for Dolby Pro Logic applications (not Dolby Digital, DTS or other digital processing), where the receiver/processor is equipped with a subwoofer output, or a volume-controlled preamp (line-) level output:

Use RCA-type interconnects to connect the line-level subwoofer outputs on your receiver or amplifier to the line-level inputs on the subwoofer. IMPORTANT: Do not use the LFE input on the subwoofer with Dolby Pro Logic processors.

NOTE: If your receiver or amplifier has only one subwoofer output jack, then you will need to use a Y-connector (not included). Plug the male end of the Y-connector into your receiver or amplifier's subwoofer output jack, and connect each of the two female ends to separate RCA-type interconnects. Finally, plug the RCA-type interconnects into the line-level inputs on the subwoofer.

Connect each speaker to the corresponding speaker terminals on your receiver or amplifier.

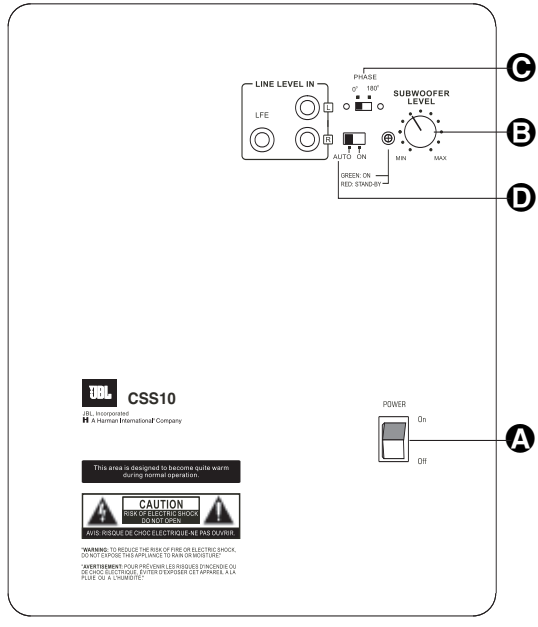
Make sure your receiver or processor is correctly configured to indicate that the subwoofer is "On."



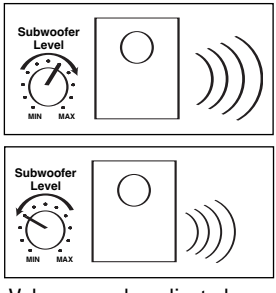
SUBWOOFER OPERATION

Press the Master Power switch (marked "Power" Ⓐ) to the On position to use the subwoofer. The CSS10 subwoofer will automatically turn on or go into standby (sleep) mode as described below. When your receiver or amplifier is off, or is not sending program material to the subwoofer, the subwoofer will be in standby mode (the LED on the front of the CSS10 will be red). When the subwoofer senses an audio signal, it will automatically turn on (the LED will be green). If the subwoofer does not sense a signal after approximately 20 minutes, it will automatically go into standby mode.

If you will be away from home for an extended period of time, or if the subwoofer will not be used, switch the Master Power switch Ⓐ to the Off position by pressing it until it pops out.

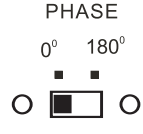


VOLUME



Volume may be adjusted using the Subwoofer Level control Ⓑ, as shown.

The Phase control determines whether the subwoofer's pistonlike action moves in and out in phase with the main speakers or opposite the main speakers. There is no correct or incorrect setting. Proper phase adjustment depends on several variables, such as subwoofer placement and listener position. Adjust the Phase switch Ⓒ to maximize bass output at the listening position.



Remember, every system, room and listener is different. There are no right or wrong settings; this switch offers the added flexibility to adjust your subwoofer for optimum performance for your specific listening conditions without having to move your speakers. If at some time in the future you happen to rearrange your listening room and move your speakers, you should experiment with the phase switch in both positions, and leave it in the position that maximizes bass performance.

TROUBLESHOOTING

If there is no sound from any of the speakers:

• Check that receiver/amplifier is on and a source is playing.

• Check that the powered subwoofer is plugged in and is turned on (Power switch Ⓐ pushed in).

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• Review proper operation of your receiver/amplifier.

If there is no sound coming from one speaker:

• Check the "Balance" control on your receiver/amplifier.

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• In Dolby Digital or DTS modes, make sure that the receiver/amplifier is configured so that the speaker in question is enabled.

• Turn off all electronics and switch the speaker in question with one of the other speakers that is working correctly. Turn everything back on, and determine whether the problem has followed the speaker or has remained in the same channel. If the problem is in the same channel, the source of the problem is most likely with your receiver or amplifier, and you should consult the owner's manual for that product for further information. If the problem has followed the speaker, consult your dealer for further assistance or, if that is not possible, visit www.jbl.com.

If there is no sound from the center speaker:

• Check all wires and connections between receiver/amplifier and speaker. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• If your receiver/processor is set in Dolby Pro Logic mode, make sure the center speaker is not in phantom mode.

• If your receiver/processor is set in one of the Dolby Digital or DTS modes, make sure the receiver/processor is configured so that the center speaker is enabled.

If the system plays at low volumes but shuts off as volume is increased:

• Check all wires and connections between receiver/processor and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• If more than one pair of main speakers is being used, check the minimum impedance requirements of your receiver/amplifier.

If there is low (or no) bass output:

• Make sure the connections to the left and right "Speaker Inputs" have the correct polarity (+ and –).

• Make sure the subwoofer is plugged into an active electrical outlet and is turned on (Power switch Ⓐ pushed in).

• In Dolby Digital or DTS modes, make sure your receiver/processor is configured so that the subwoofer and LFE output are enabled.

• Switch the Phase switch Ⓒ to the opposite position, and select the position that results in the most pleasing bass response.

If there is no sound from the surround speakers:

• Check all wires and connections between receiver/processor and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

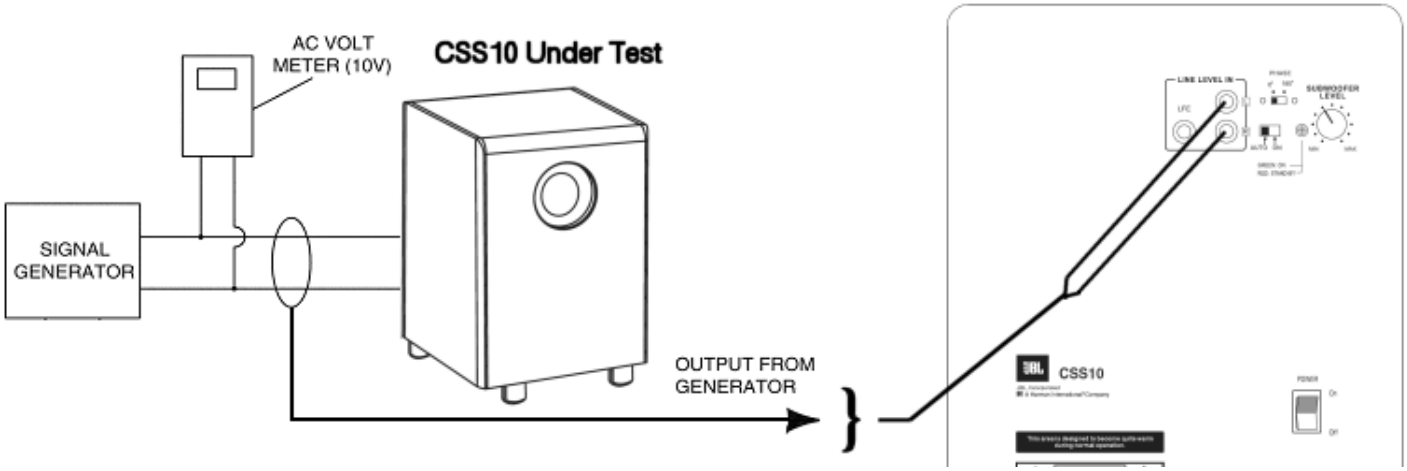
• Review proper operation of your receiver/amplifier and its surround sound features.

• Make sure the movie or TV show you are watching is recorded in a surround sound mode. If it is not, check to see whether your receiver/processor has other surround modes you may use.

• In Dolby Digital or DTS modes, make sure your receiver/processor is configured so that the surround speakers are enabled. When five satellites are in use, remember to configure your receiver or processor for 6.1-channel operation, and when six satellites are in use, configure your receiver or processor for 7.1 channels.

• Review the operation of your DVD player and the jacket of your DVD to make sure that the DVD features the desired Dolby Digital or DTS mode, and that you have properly selected that mode using both the DVD player's menu and the DVD disc's menu.

Test Set Up and Procedure



Equipment needed:

- Function/signal generator/sweep generator
- Integrated Amplifier
- Multimeter
- Speaker cables

Initial Control Settings:

- Power Switch OFF
- Level MIN (Full CCW)
- Phase, Auto/On switches do not matter

General Unit Function (UUT = Unit Under Test)

1) From the signal generator, connect one line level (RCA) cable to the Subwoofer Line Level In jacks L/R on the UUT. Use a Y-cable from a mono source if necessary to connect to both inputs. Do not connect to the single, purple LFE input.
2) Turn on generator; adjust to **75mV, 50 Hz**.
3) Plug in UUT; turn the power switch ON. Turn LEVEL control full clockwise (MAX)
4) LED should turn from Red to Green; immediate and vigorous bass response should be heard and felt from port tube opening.
5) Turn off generator, turn LEVEL control full counterclockwise (MIN), and disconnect RCA cable.

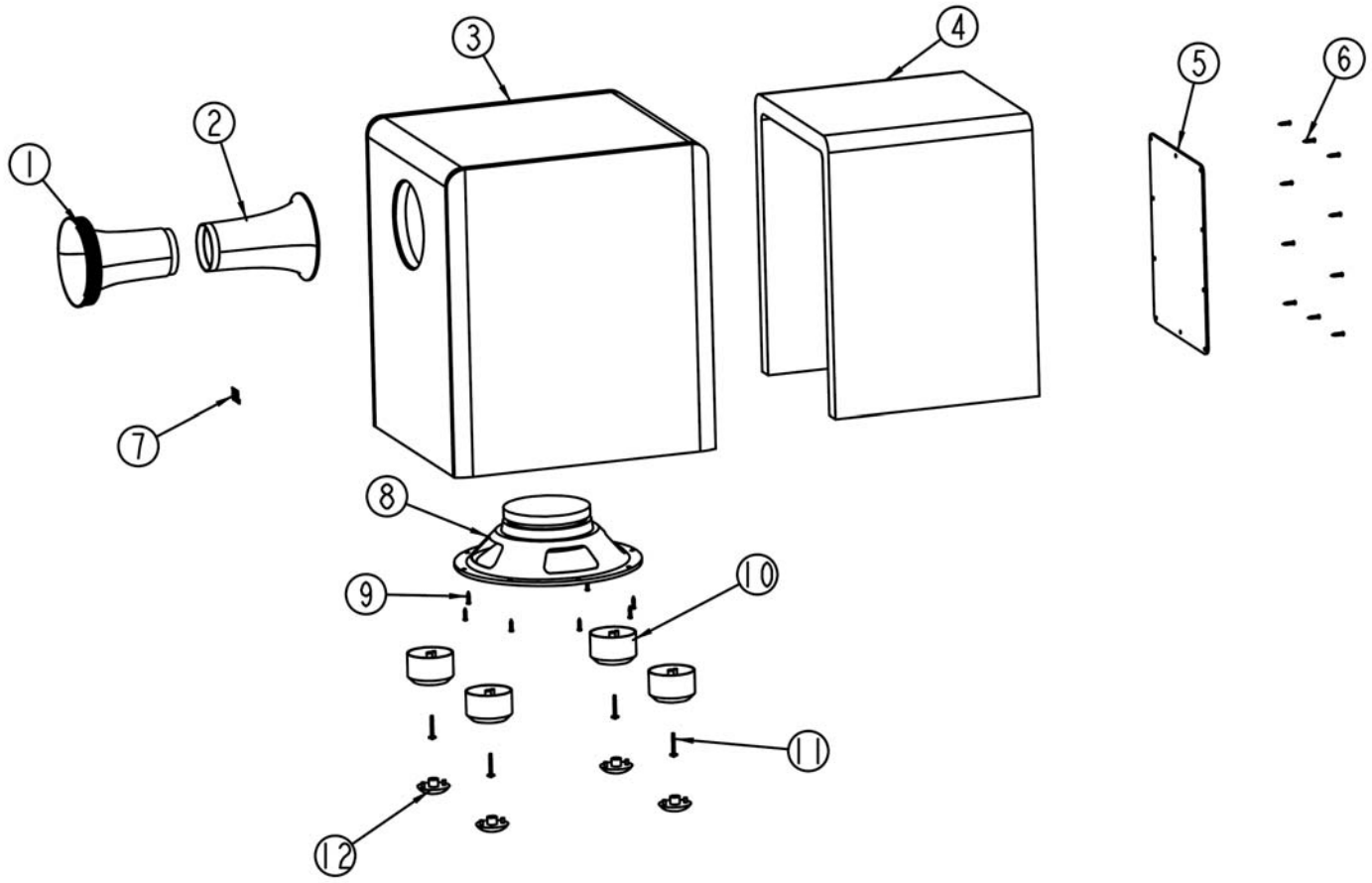
Sweep Function

1) Follow steps 1-5 above, using a sweep generator as a signal source.
2) Sweep generator from 20Hz to 300Hz. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove woofer and test.

Driver Function

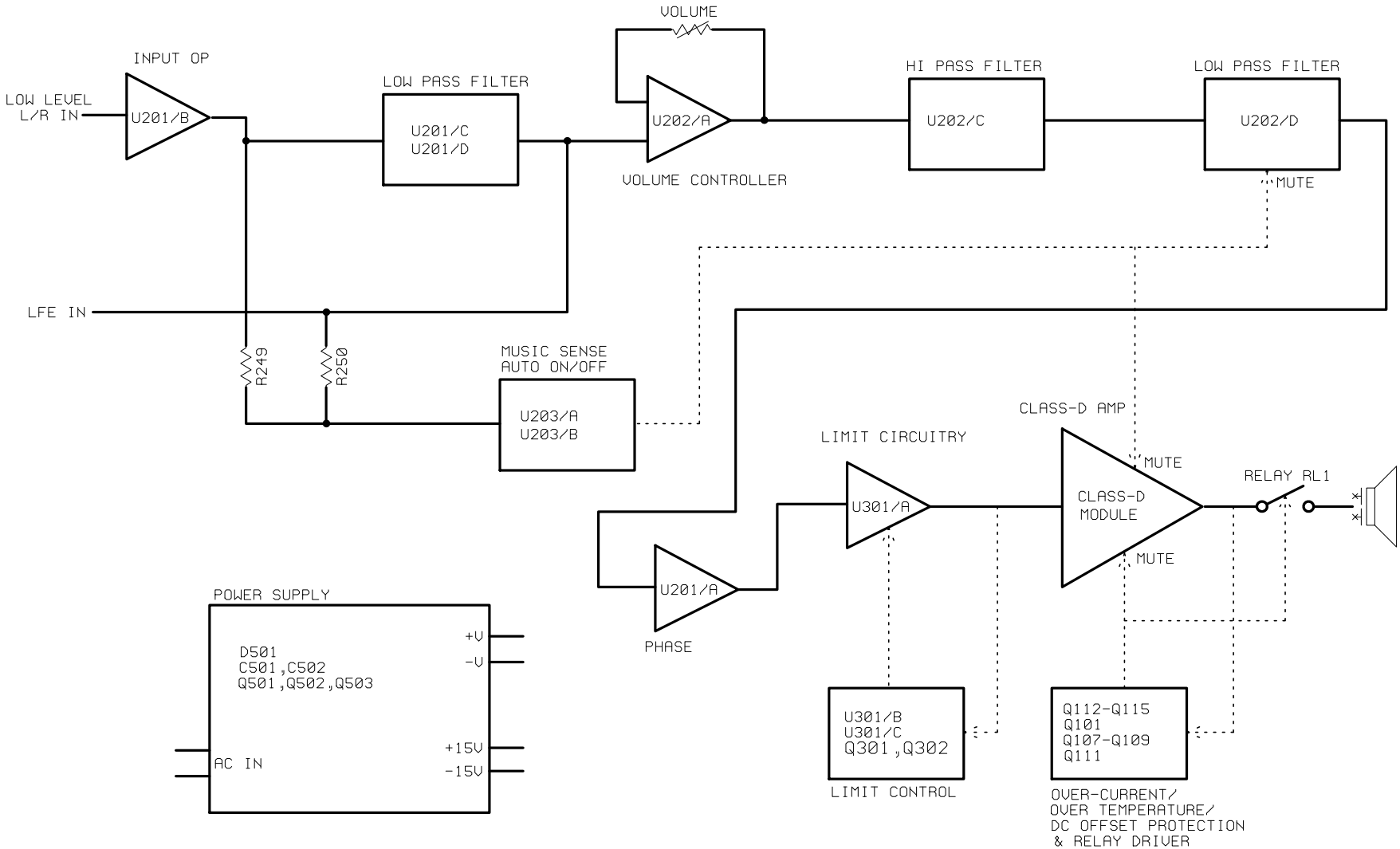
1) Remove woofer from cabinet; detach + and - wire clips.
2) Check DC resistance of woofer; it should be **3.5 ohms** ±10%
3) Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is **5.0**V.
4) Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.
5) Caution: Observe correct polarity when re-attaching speaker wires as terminals are identical in size..

CSS10 EXPLODED VIEW



Item#	Part Number	Description	Qty
1	249-ABS-05080-0VAE	Port Tube (Outer Portion)	1
2	249-ABS-05095-0VAE	Port Tube (Inner portion)	1
3	Not Available	CSS10 Cabinet	1
4	Not Available	Dacron Filler	1
5	Not Available	CSS10 Amplifier	1
6	352-AM04020D210-E	Amplifier Screws	10
7	316-CU-05174-0VAE	JBL Logo	1
8	25PR12FZL-DW01	10” (250mm) Woofer DCR = 3.5Ω	1
9	352-FM04020D605-E	Woofer Screw	8
10	321-ABS-00008-0BAE	Plastic foot	4
11	352-HM04030D500-E	Foot Screws	4
12	321-RUB-00009-0BAE	Foot Pads	4

CSS10 BLOCK DIAGRAM

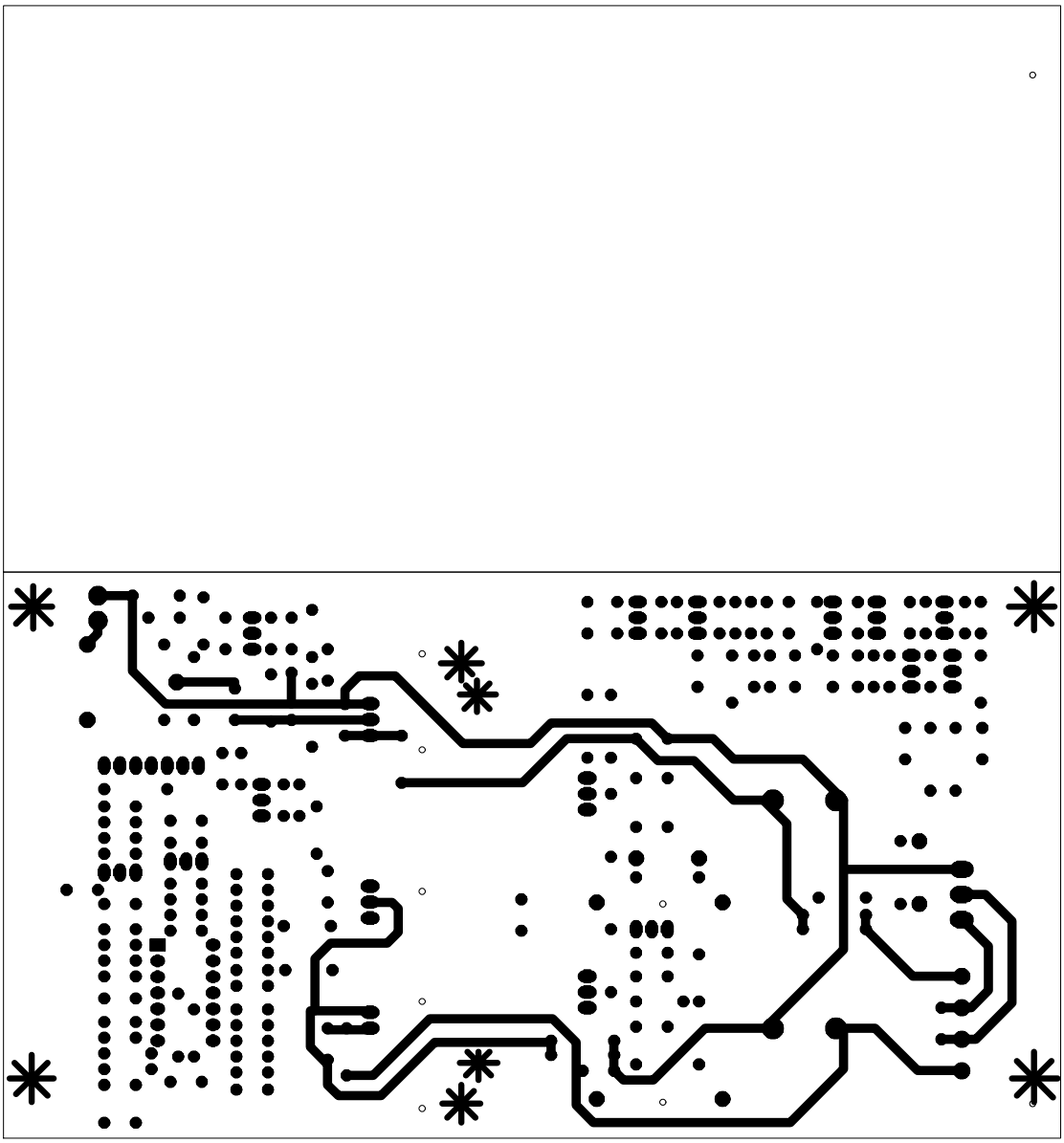


CSS10 Electrical Parts List			
Part Number	Description	Qty	Reference Designators
PREAMP PCB			
Resistors			
110-16102j26	CARBON RESISTOR 1K 1/6W ±5% CF 26mm	4	R213,R214,R215,R254
110-16103j26	CARBON RESISTOR 10K 1/6W ±5% CF 26mm	18	R9,R10,R11,R212,R216,R217,R220,R221,R222, R225,R228,R229,R230,R232,R240,R248,R260
110-16104j26	CARBON RESISTOR 100K 1/6W ±5% CF 26mm	3	R231,R263,R266,
110-16105j26	CARBON RESISTOR 1M 1/6W ±5% CF 26mm	1	R259
110-16122j26	CARBON RESISTOR 1.2K 1/6W ±5% CF 26mm	1	R265
110-16151j26	CARBON RESISTOR 150Ω 1/6W ±5% CF 26mm	1	R253
110-16154j26	CARBON RESISTOR 150K 1/6W ±5% CF 26mm	1	R252
110-16183j26	CARBON RESISTOR 18K 1/6W ±5% CF 26mm	1	R262
110-16205j26	CARBON RESISTOR 2M 1/6W ±5% CF 26mm	1	R257
110-16223j26	CARBON RESISTOR 22K 1/6W ±5% CF 26mm	4	R247,R255,R256,R227
110-16472j26	CARBON RESISTOR 4.7K 1/6W ±5% CF 26mm	1	R258
110-16473j26	CARBON RESISTOR 47K 1/6W ±5% CF 26mm	5	R219,R249,R250,R251,R264
110-16512j26	CARBON RESISTOR 5.1K 1/6W ±5% CF 26mm	1	R211
116-161002f26	METAL FILM RESISTOR 10K 1/6W ±1% MF 26mm	1	R237
116-161212f26	METAL FILM RESISTOR 12.1K 1/6W 1% MF 26mm	2	R223,R224
116-162152f26	METAL FILM RESISTOR 21.5K 1/6W 1% MF 26mm	1	R238
116-162202f26	METAL FILM RESISTOR 22.0K 1/6W ±1% MF 26mm	1	R226
116-162801f26	METAL FILM RESISTOR 2.80K 1/6W 1% MF 26mm	1	R234
116-164422f26	METAL FILM RESISTOR 44.2K 1/6W 1% MF 26mm	1	R233
115-h503a102	VAR RES RV16AE-20B2-15K-A54-104(A50K) LEVEL	1	VR201
Capacitors			
129-a103j633	METALIZED CAP 10NF 63V	2	C218,C217
129-a104j633	METALIZED CAP 0.1U 63V ±5% MSC	1	C215
129-a223j633	METALIZED CAP 0.022U 63V ±5% MSC	1	C223
129-a224j633	METALIZED CAP 0.22uF 63V ±5% MSC	1	C224
129-a474j633	METALIZED CAP 0.47U 63V ±5% MSC	3	C221,C222,C216
130-2b221k503	DISC CAPACITOR 220P 50V ±10%	9	C207,C208,C210,C211,C212,C214,C220,C230, C240
130-2b470k503	DISC CAPACITOR 47P 50V ±10%	1	C229
130-3f104z503	DISC CAPACITOR 0.1U 50V +80/-20%	8	C232,C242,C244,C245,C246,C252,C254,C256
130-sl101k503	DISC CAPACITOR 100P 50V SL ±10%	1	C6
135-3105m50	ELECTROLYTIC CAP 1U 50V ±20%	1	C228
135-3106m50	ELECTROLYTIC CAP 10uF 50V ±20%	8	C206,C213,C219,C231,C241,C243,C251,C253
135-3107m16	ELECTROLYTIC CAP 100uF 16V ±20%	1	C234
135-3226m16	ELECTROLYTIC CAP 22U 16V ±20%	1	C225
135-3226m50	ELECTROLYTIC CAP 22U 50V ±20%	3	C225,C505,C506
135-3227m16	ELECTROLYTIC CAP 220U 16V ±20%	1	C233
Semiconductors			
192-027c1815gr	TRANSISTOR 2SC1815GR NPN	4	Q201,Q206,Q207,Q208
197-031n4148	DIODE 100mA 75V SIGNAL 1N4148 ROHM	9	D201,D202,D207,D208,D211,D212,D214,D215, D216
199-15000335	ZENER DIODE 3.3V 1/2W 52mm	1	D213
190-06m4558d	I.C. OPA 4558D DIP DUAL OP-AMP	1	U203
190-16tl074cn	I.C TL074CN ST QUAD OP-AMP	2	U201,U202
195-10204hgw	LED 204HGW 3 ¢ RED/GREEN	1	D209
Miscellaneous			
162-50159201	WIRE ASS'Y 2PIN 150mm WHT/RED	1	P1 TO PSW
174-0rca108gv	RCA-108GV purple JK203 LFE	1	JK201

Part Number	Description	Qty	Reference Designators
PREAMP PCB			
174-0rcb202vag	RCA JACK RCA-209 GOLDEN LINE IN DUAL	1	JK202
175-1c07v01	WIRE CONNECTOR&BASE 7PIN PITCH=2.5mm	1	M201
180-tms7210v	SWITCH SLIDE 6PIN MS7210V AUTO ON	1	SW201
180-sms50126	SWITCH SLIDE SW MS50126 PHASE	1	
CLASS D PCB ASS'Y (RECOMMENDED REPLACE ENTIRE MODULE PART# 012-7500-00022)			
Resistors			
118-12061001j	SMD RESISTOR 1.00K 1206 5%	4	R2,R11,R29,R30
118-12061002j	SMD RESISTOR 10.0K 1206 5%	3	R7,R9,R25
118-120610r0j	SMD RESISTOR 10.0Ω 1206 5%	2	R22,R23
118-12061201j	SMD RESISTOR 1.20K 1206 5%	16	R31,R32,R33,R34,R35,R36,R37,R38,R39,R40, R41,R42,R43,R44,R45,R46
118-12062002j	SMD RESISTOR 20.0K 1206 5%	1	R26
118-12062201j	SMD RESISTOR 2.20K 1206 5%	3	R6,R13,R16
118-12062701j	SMD RESISTOR 2.70K 1206 5%	1	R10
118-12063000j	SMD RESISTOR 300.0Ω 1206 5%	1	R24
118-12063301j	SMD RESISTOR 3.30K 1206 5%	4	R14,R15,R27,R28
118-12063902j	SMD RESISTOR 39.0K 1206 5%	1	R3
118-12064700j	SMD RESISTOR 470Ω 1206 5%	1	R8
118-12064701j	SMD RESISTOR 4.70K 1206 5%	3	R1,R5,R12
118-12064702j	SMD RESISTOR 47.0K 1206 5%	1	R17
118-12064704j	SMD RESISTOR 4.70M 1206 5%	1	R4
118-120647r0j	SMD RESISTOR 47.0Ω 1206 5%	2	R20,R21
Capacitors			
141-c0101k50	SMD CAPACITOR 100pF 50V 10% 1206 NP0	1	C4
141-c0220k50	SMD CAPACITOR 22pF 50V 10% 1206 NPO	1	C5
141-c0561k50	SMD CAPACITOR 560pF 50V 10% 1206 NPO	1	C6
141-c5104m50	SMD CAPACITOR 1206 Y5V 0.1uF 50V ±20%	8	C2,C3,C7,C8,C9,C10,C11,C15
141-c7223k50	SMD CAPACITOR 0.022uF 50V 10% 1206 X7R	1	C13
141-d7104ka0	SMD CAPACITOR 0.1uF 100V 10% 1210 X7R	2	C12,C14
141-d7104kb5	SMD CAPACITOR 0.1uF 250V 10% 1210 X7R	4	C1,C18,C19,C20
128-e106ma01	CROSSVER CAP 10uF 100V 20%	2	C16,C17
Semiconductors			
190-16tl072dts	SMD I.C. TL072CDT SGS THOMSON	1	IC1
192-09124126qs	SMD TRANSISTOR 2SC2412K-T146Q/R ROHM	3	Q1,Q4,Q5
192-09139066rs	SMD TRANSISTOR 2SC3906K-T146R ROHM	2	Q2,Q8
192-09210376qs	SMD TRANSISTOR 2SA1037K-T146Q/R ROHM	2	Q7,Q9
192-09215146rs	SMD TRANSISTOR 2SA1514K-T146R ROHM	2	Q3,Q6
197-03rls4148s	SMD DIODE RLS4148-TE11 ROHM	6	D1,D2,D3,D4,D5,D6
199-15000563s	SMD ZENER 5.6V 5% PHILIPS BZX84-C5V6	2	Z1,Z2
199-1500120s-e	SMD ZENER 12V 5% PHILIPS BZX84-C12 (RoHS)	2	Z5,Z6
199-15001503s	SMD ZENER 15V 5% PHILIPS BZX84-C15	2	Z3,Z4
192-232irf9640	FET IRF9640 IR P-CH TO220	1	Q10
192-233f640n	TRANSISTOR IRF640N INTERNATIONAL	1	Q11
Miscellaneous			
122-14121m4191	Ferrite core LS-A6206-ST EFD-30	1	L1
122-14350j4180	CHOKE COIL 35uH Ferrite Core 25 Milliohm	1	L2
123-11rc6*30wd	BOBBIN(NI-ZN)RC6*30	1	
175-9f40hr2	WIRE CNCT+B220R&BASE 40PIN PIT=2.54mm HR2*40		

Part Number	Description	Qty	Reference Designators
MAIN PCB			
Resistors			
110-14103j26	resistor 10K 1/4W ±5% 26mm	3	R503.504.510
110-14222j26	resistor 2.2K 1/4W ±5% 26mm	1	R511
110-14432j26	resistor4.3K 1/4W ±5%CF 26mm	1	R506
110-14472j26	resistor 4.7K 1/4W ±5% CF 26mm	1	R505
110-16102j26	resistor 1K 1/6W ±5% CF 26mm	1	R153
110-16103j26	resistor 10K 1/6W ±5% CF 26mm	10	R128.130.149.150.305.306.308.311.314.319
110-16104j26	resistor 100K 1/6W ±5% CF 26mm	3	R122.126.307
110-16153j26	resistor 15K 1/6W ±5% CF 26mm	1	R107
110-16182j26	resistor 1.8K 1/6W ±5% CF 26mm CF	1	R145
110-16203j26	resistor20K 1/6W ±5% CF 26mm	1	R390
110-16221j26	resistor 220Ω 1/6W ±5% CF 26mm	1	R144
110-16222j26	resistor2.2K 1/6W ±5% CF 26mm	1	R102
110-16223j26	resistor 22K 1/6W ±5% CF 26mm	1	R316
110-16333j26	resistor 33K 1/6W ±5% CF 26mm	1	R310
110-16393j26	resistor 39K 1/6W ±5% CF 26mm	1	R515
110-16473j26	resistor 47K 1/6W ±5% CF 26mm	2	R106.129
110-16474j26	resistor 470K 1/6W ±5%CF 26mm	1	R127
110-16434j26	resistor 430K 1/6W ±5% CF 26mm	1	R312
110-16562j26	resistor 5.6K 1/6W ±5% CF 26mm	1	R152
110-16621j26	resistor620Ω 1/6W ±5% CF 26mm	1	R160
110-16751j26	resistor 750Ω 1/6W ±5% CF 26mm	1	R315
110-16755j26	resistor 7.5M 1/6W ±5% CF 26mm	1	R313
116-161002f26	resistor10K 1/6W ±1% MF 26mm	2	R301.303
116-161202f26	resistor12.00K 1/6W ±1% MF 26mm	1	R302
110-20332jk3	resister 3.3K 2W ±5% CF7.5m	1	R134
113-50s68j00	cement resistor 0.068Ω 5W ±5%	1	R147
116-201001jk3x	metal film resistor 1.00K 2W ±5% 7.5mm	1	R148
116-304700jk2x	metal film resistor 470Ω 3W ±5% 10mm	2	R501.502
Capacitors			
116-162200f26	disc capacitor220Ω 1/6W ±1% MF 26mm	1	R317
116-162202f26	disc capacitor22.0Ω 1/6W ±1% MF 26mm	1	C318
130-3f104z503	disc capacitor0.1U 50V+80/-20%	6	C107.117.122.144.320.322
130-s1101k503	mylar capacitor 100P 50V SL ±10%	3	C302..303.306
132-103j503	mylar capacitor 0.01uF 50V ±5%	2	C305.317
132-103j504	mylar capacitor 0.01uF100V ±5%	2	C103.104
132-104ja03	mylar capacitor 0.01uF100V ±5%	3	C123.503.504
132-273ja03	mylar capacitor 0.027uF100V ±5%	1	C143
135-3106m10	mylar capacitor10U50V ±20%	2	C319.321
135-3107m10	mylar capacitor100U 10V ±20%	2	C114.115
135-3107m35	mylar capacitor100U 35V ±20%	2	C507.508
135-3225m50	mylar capacitor2.2U 50V ±20%	1	C509
135-3226m16	mylar capacitor22U 16V ±20%	1	C304
135-3226m50	mylar capacitor22U 16V ±20%	2	C505.506
135-3227m16	mylar capacitor220U 16V ±20%	1	Q118
135-3476m16	mylar capacitor47U 16V ±20%	1	C318
132-103kd00	mylar capacitor 0.01uF 400V ± 10%	1	C500
138-5478m80	ELECTROLYTIC CAP 4700uf 80V 20%	2	C501.502
Semiconductors			
192-027c1815gr	TRANSISTOR 2SC1815GR NPN	5	Q108.109.113.301.302
192-207c2235y	Transistor 2SC2235Y NPN	1	Q111
192-028a1015gr	Transistor 2SA1015GR PNP	3	Q101.107.112
192-1572n5551	Transistor 2N5551 NPN	2	Q114.115
192-1582n5401	transistor FSC 2N5401 AI-PNP 350V500mA TO-92	1	Q503
197-031n4148	diode 100mA 75V SIGNAL IN4148 ROHM	7	D102.103.104.105.143.301.302

Part Number	Description	Qty	Reference Designators
MAIN PCB			
199-15000625	zener diode 6.2V 1/2W52mm	1	D101
199-15000605	zener diode 16V 1/2W52mm	1	D502
190-16t1074cn	IC TL074CN ST DUAL OP-AMP	1	U301
192-161tip31c	Transistor TIP31C SGS NPN	1	Q501
192-162tip32c	Transistor TIP32C SGS PNP	1	Q502
197-00kbu606g	diode 6A 800V KBU606G BRIDGE	1	D501
197-141n4004	diode 1N4004	2	D110,504
Miscellaneous			
109-1ttc802j0	thermister TTC-802(JS) NTC	1	TH1
120-1000003	inductor 10W AI YT-C3104-005 ICRHW	2	FB1.FB2
171-urwh124d	relay RWH-SH-124D (1600ohm)	1	RL1
162-50129001	wire cable ass'y 120mm AWG28 WHT	1	W201
175-1d02v01	wire connector 2PIN PITCH=3.96mm	1	M100
175-1d03v01	wire connector 3PIN PITCH=3.97mm	1	M500
MISCELLANEOUS/MECHANICAL			
130-3f104z503	disk cap 0.1U 50V +80/-20%	1	On Power Switch
350-FM04012D106	oval head wood screw with nickel ψ4*12	4	
352-AM03010D066	pan head ping P screw with nickel ¢3*10	2	
352-AM03008D041	pan head ping B screw with nickel ¢3*8	4	
150-r4055900	power transformer I/P:120V/60HzTT0900008720	1	T501
152-U602015	line cord SVT FT-2 6FT	1	Power Cord
154-k31505t0	fuse 3.15A 250V 30mmUL/CSA/PSE	1	F501
155-63032i	fuse holder HTB-32I 30mmUL/CSA	1	for F501
180-pbr12c11s	power switch PUSH BR12C11S	1	SW501
162-10082007	WIRE RED 18AWG 80mm#1015	1	
362-FE-00013	PCB bracket TYPE L t=1.6mm S.P.C.C 89*9*1.6T	2	
311-ABS-00028	plastic knob LEVEL	1	for LEVEL control
306-ABS-00004	REAR PLASTIC CABINET 268*213*102 A B S UL	1	
335-NYL-00002	strain relief bushing 4K-4 NO-BB	2	
176-wjcel	lose-end connect CE-1	1	
333-EVA-00096	EVA gasket 213*15*2mm	2	
333-EVA-00097	EVA gasket 213*15*1mm	2	
333-EVA-00132	EVA gasket 238*15*2mm	2	
333-EVA-00133	EVA gasket 238*15*1mm	2	
333-EVA-00220	EVA gasket 225*15*1mm	1	
333-EVA-00188	EVA gasket 170*5*1mm	1	
193-201815t2	insulator	2	
352-HM03012D086	round washer head ping B screw with black zinc ¢3*12	1	
317-000-00037	earthing terminal 0.3t	1	
323-AL-00056	natured heat sink 83.5*50.5*27.5	1	
333-EVA-00219	EVA gasket 150*15*1	1	
351-AM03008A078	pan head machine screw with nickel M3*8	7	
302-AL-00020-2LAE	rear pnl css10 silver 270*215*2.5mm (ROHS)	1	
351-AM02006A384	pan head machine screw with nickel M2.0*6	2	
162-a040d00-e	speaker line #1015 400mm(ROHS)	1	



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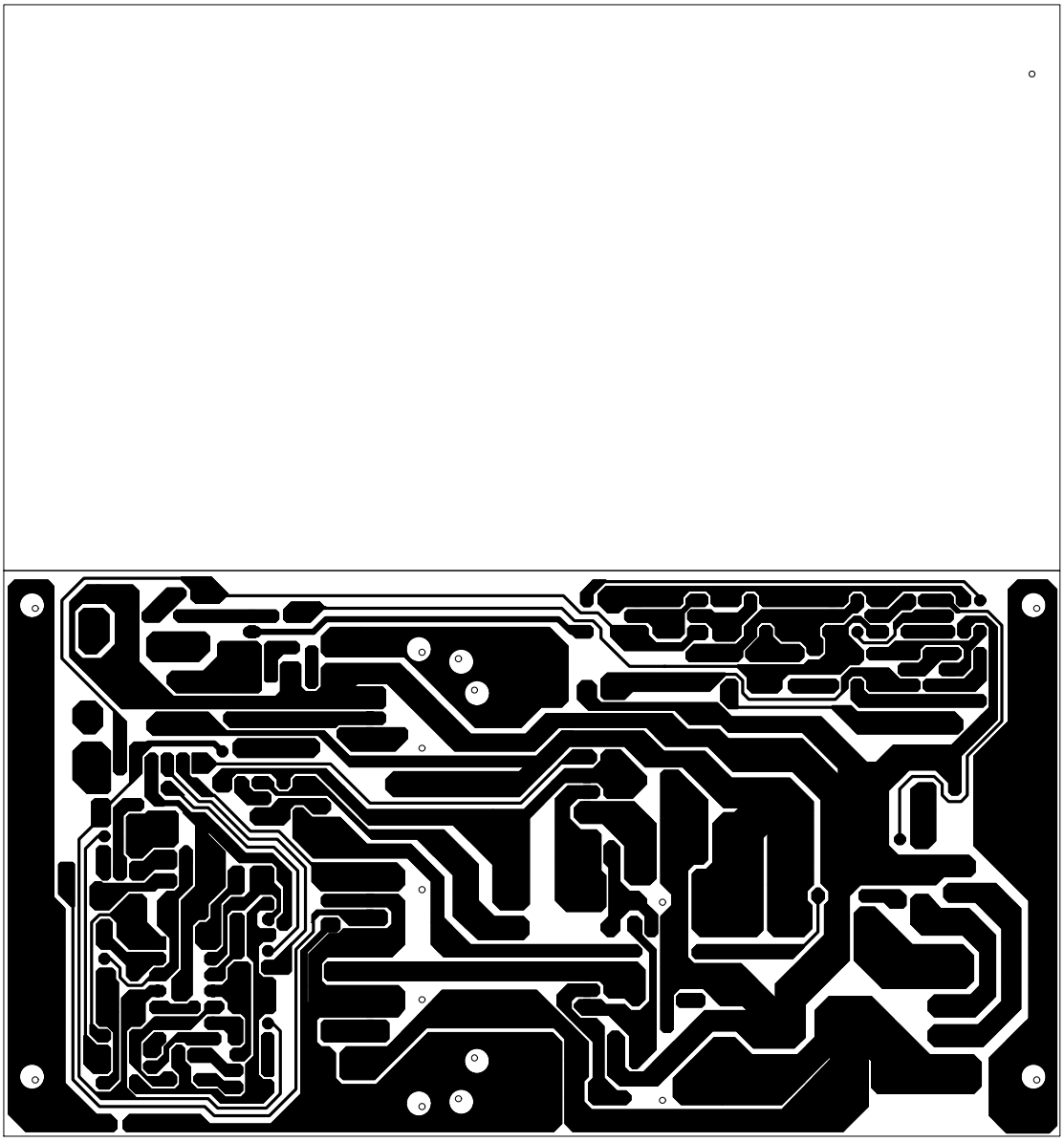
							MATERIAL : FR-1(94V0)	2
							LAYER	3



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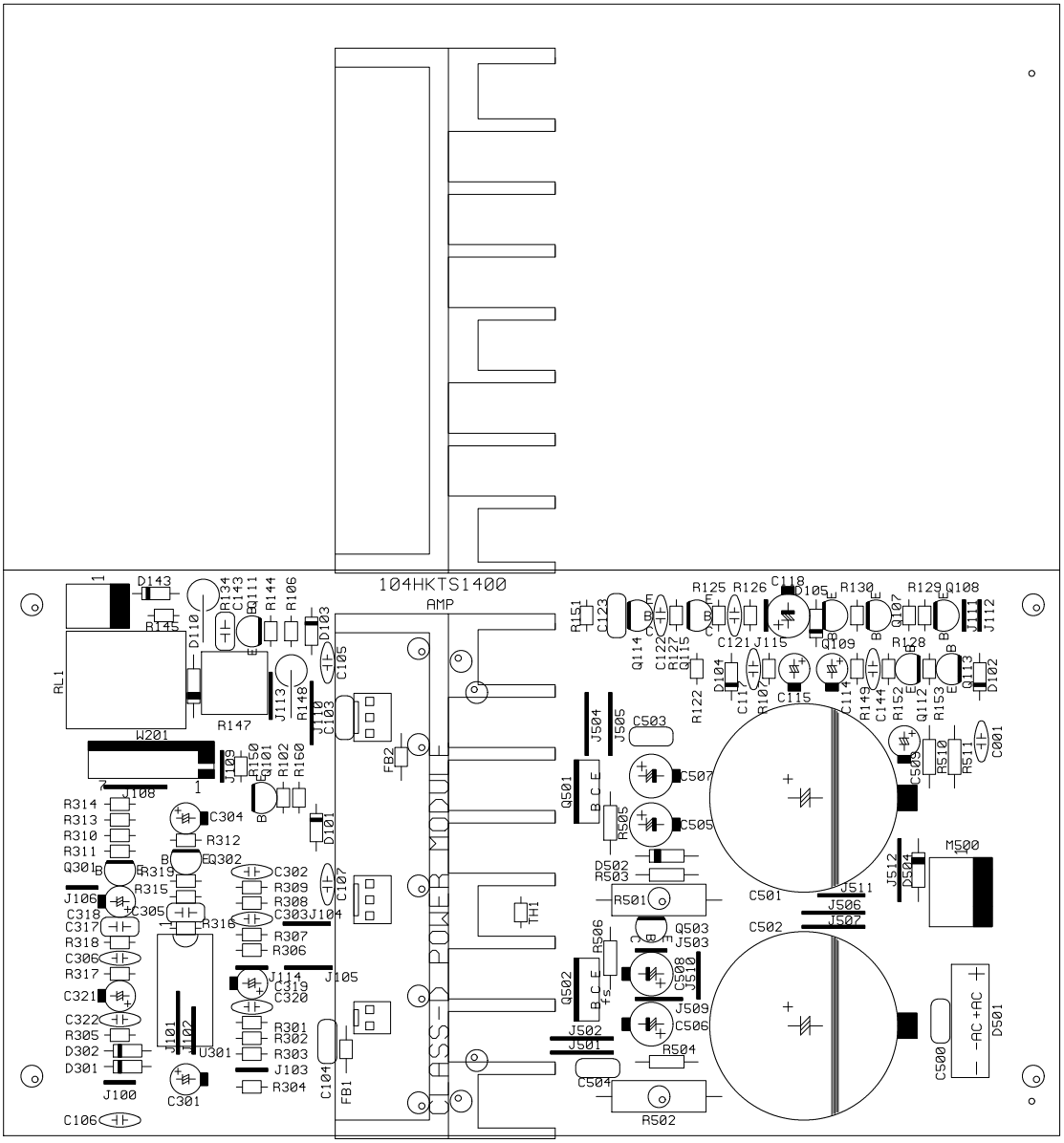
							LAYER SOLDER PATTERN	3



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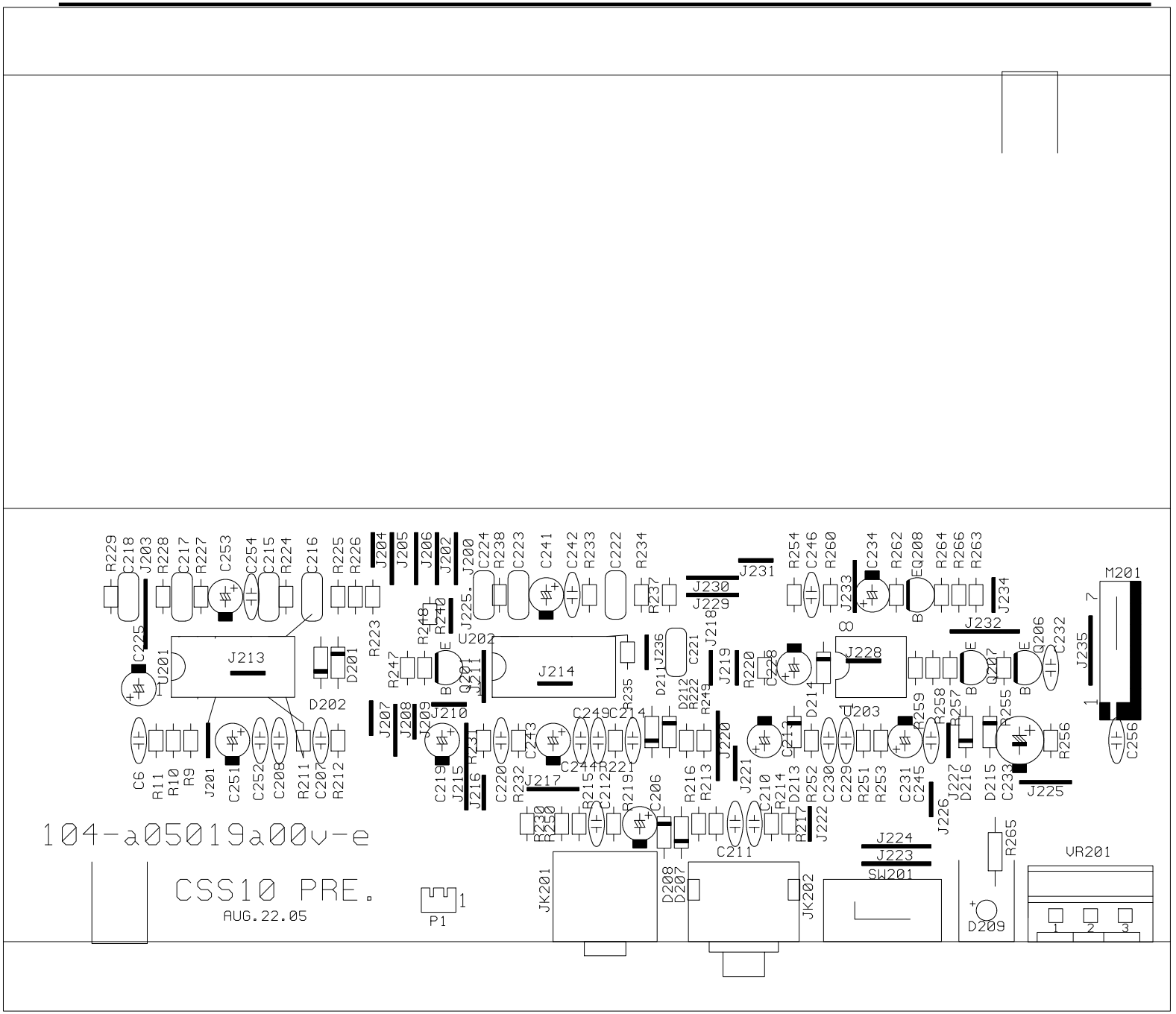
							MATERIAL : FR-1(94V0)	2
							LAYER SILK SCREEN	3


104-a05019a00v-e
CSS10 PRE.
AUG.22.05
P1
JK201
JK202
SW201
VR201
M201
U201
J213
J214
J228
J225
C211
D202
D203
D209
D211
D214
Q201
Q202
Q203
Q206
Q207
EQ208
J201
J202
J203
J204
J205
J206
J207
J208
J209
J210
J211
J215
J216
J217
J218
J219
J220
J221
J222
J223
J224
J226
J227
J229
J230
J231
J232
J233
J234
J235
J236
C6
C201
C202
C203
C204
C205
C206
C207
C208
C210
C212
C213
C214
C215
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D201
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D215
D216
R9
R10
R11
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R202
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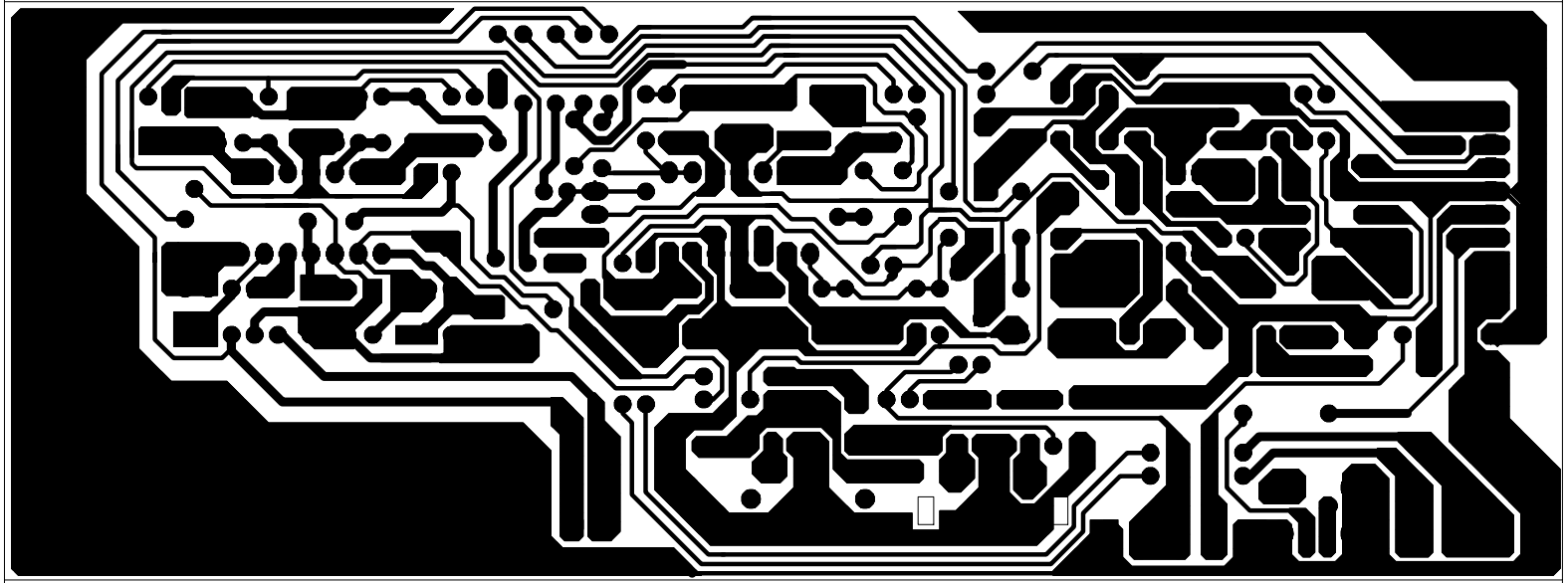
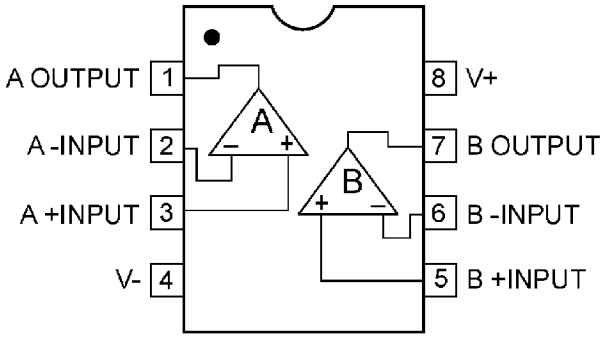
R263
R264
R265
R266
VR201

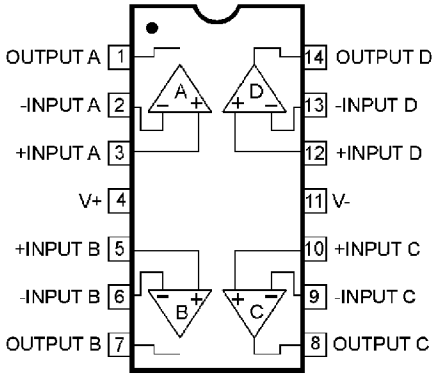


Integrated Circuit Diagrams

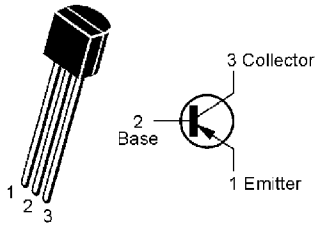
TLO72, 4558 Dual Op Amp
IC1, 203



OPAMP, QUAD 14P DIL TL074
U201, 202, 301

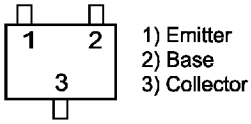


2N5401
Q503

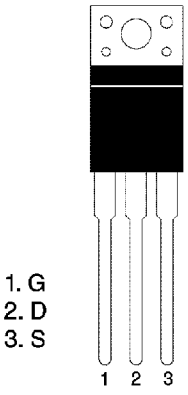


2SC2412K
2SC3906K
2SA1037K
2SA1514K

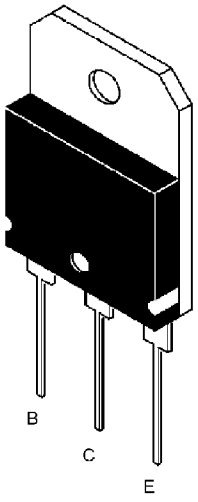
Q1-Q5, Q6-Q9



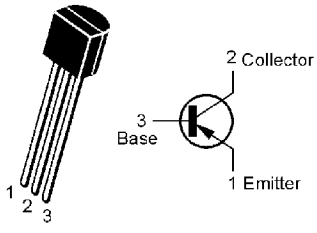
MOSFET
IRF640,
9640
Q10,11



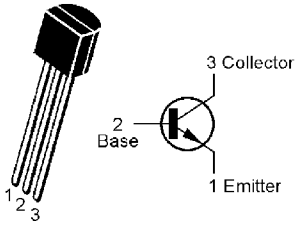
TIP 31C, 32C
Q501,502



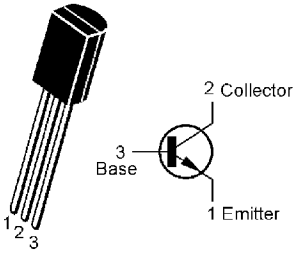
2SA1015
Q101,107,112



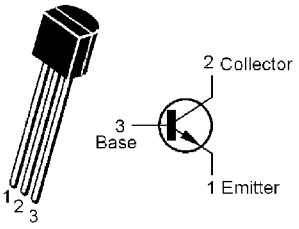
2N5551
Q114,115

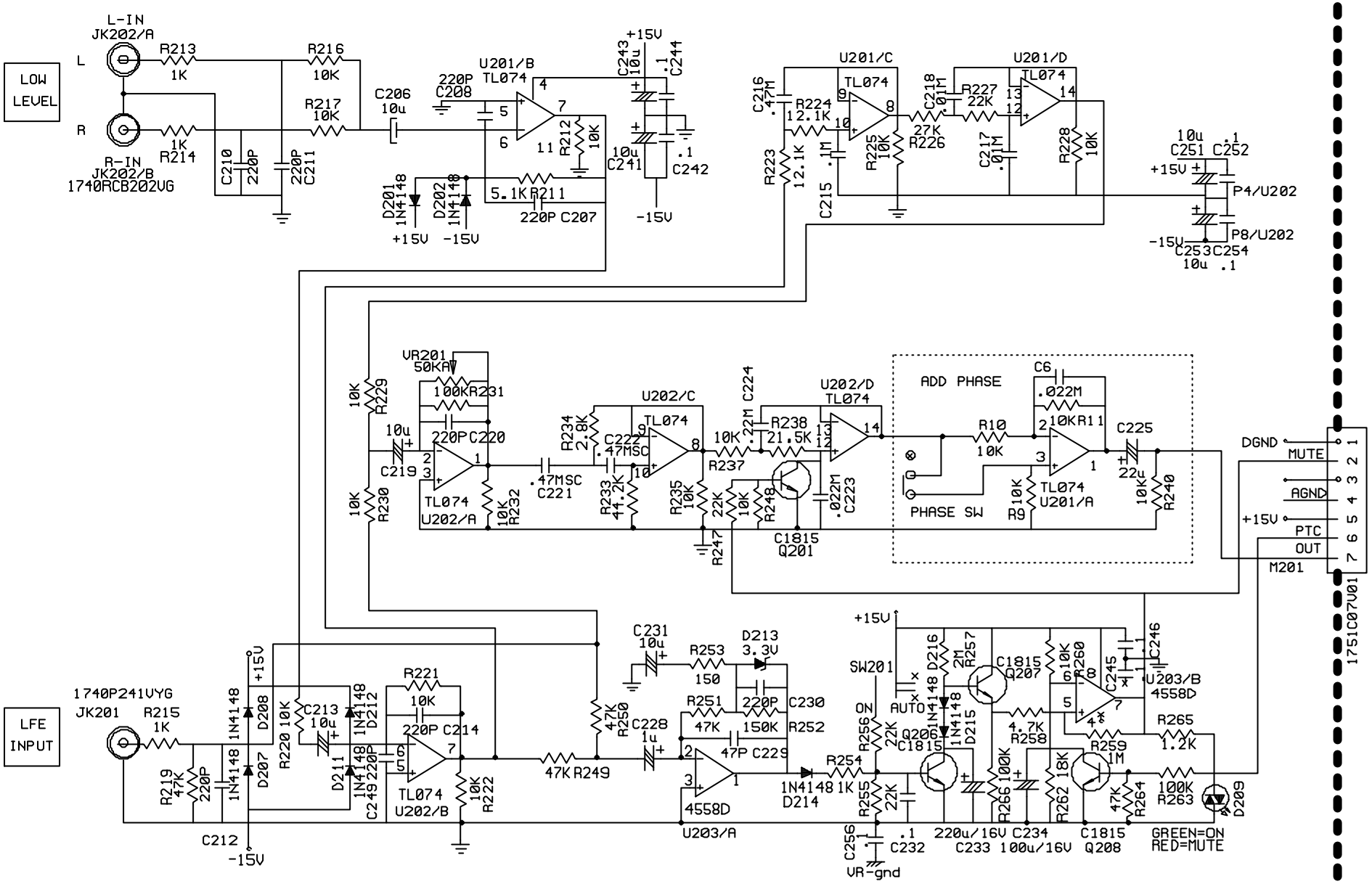


2SC2235Y
Q111



2SC1815
Q108,109,113,201,
206,207,208,301,302





CSS10 PRE AMP

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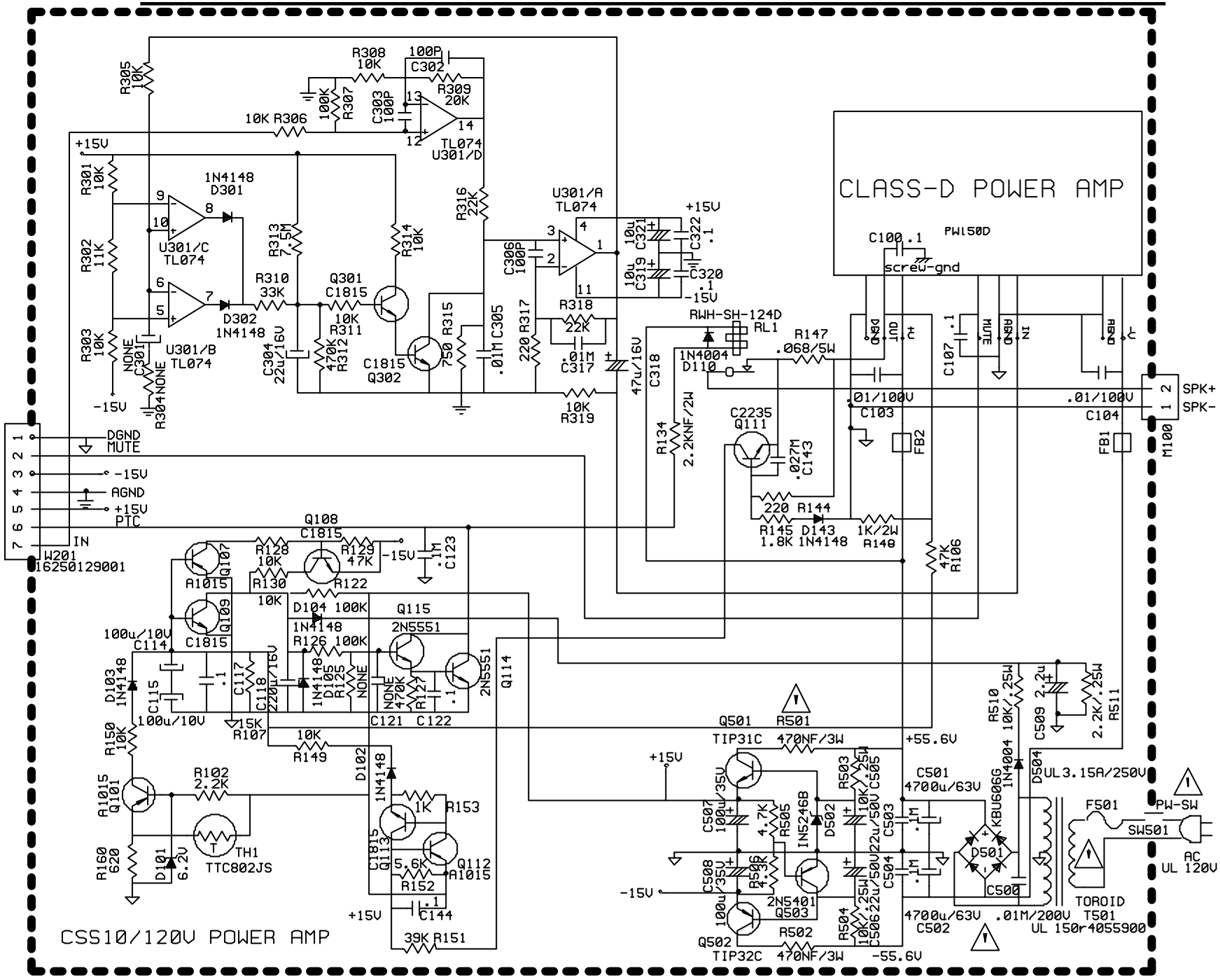
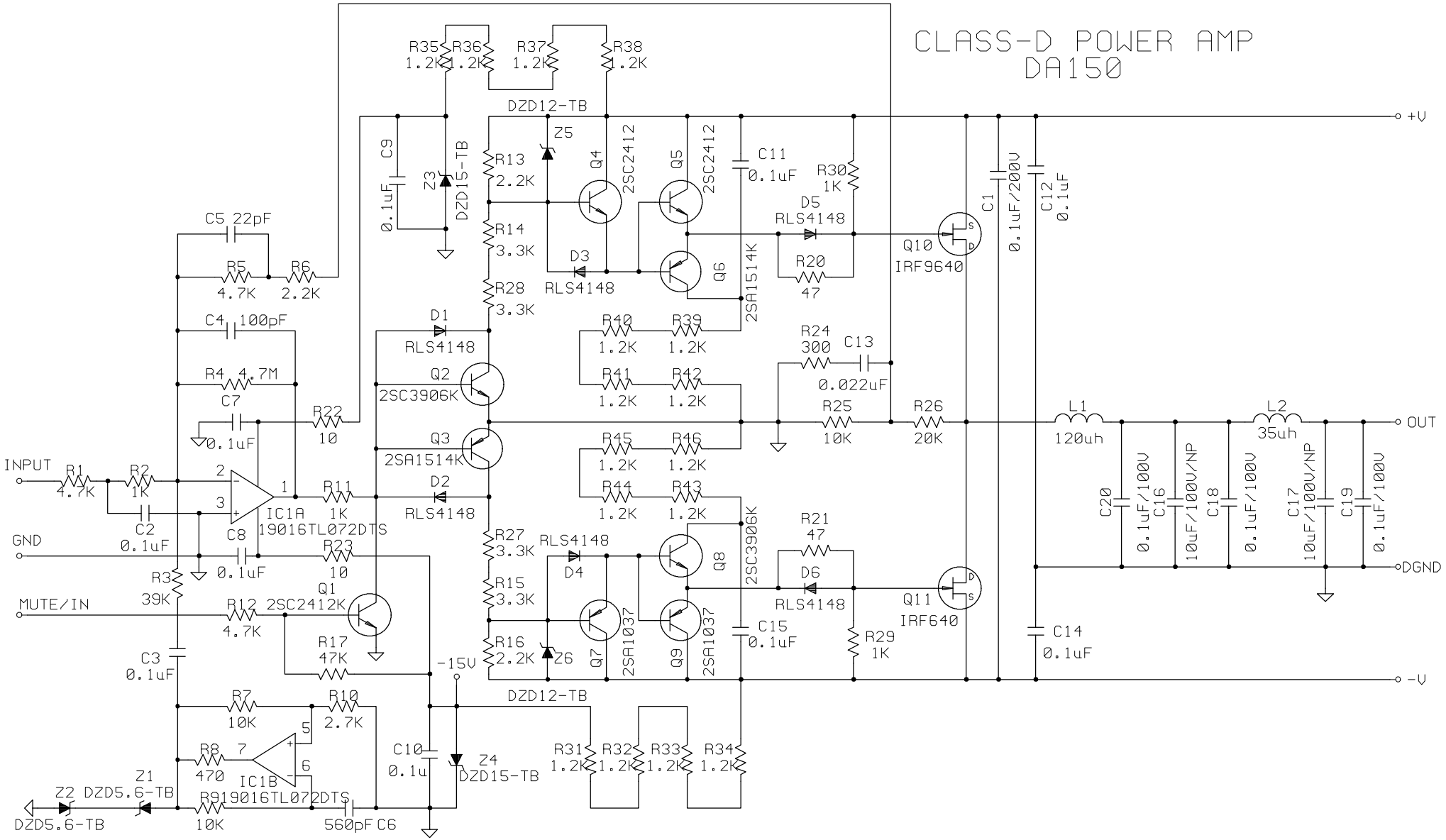
			MODEL NO.	1
			DWN BY : QHPENG	2
			DATE : AUG.18.05	3


CLASS-D POWER AMP
PW150D
CSS10/120V POWER AMP
+15V
-15V
DGND
MUTE
AGND
PTC
IN
W201
16250129001
SPK+
SPK-
M100
U301/A TL074
U301/B TL074
U301/C TL074
U301/D TL074
1N4148 D301
D302 1N4148
Q301 C1815
Q302 C1815
Q108 C1815
Q111 C2235
Q115 2N5551
Q114 2N5551
Q501 TIP31C
Q502 TIP32C
Q503 2N5401
Q101 A1015
Q107 A1015
Q109 C1815
Q112 A1015
Q113 C1815
TH1 TTC802JS
RWH-SH-124D RL1
1N4004 D110
KBU6066
1N4004
TOROIDAL T501
UL 150r4055900
F501
SW501
PW-SW
AC UL 120V
+55.6V
-55.6V


CLASS-D POWER AMP
DA150
+V
-V
OUT
DGND
INPUT
GND
MUTE/IN
-15V
IC1A 19016TL072DTS
IC1B 19016TL072DTS
Q1 2SC2412K
Q2 2SC3906K
Q3 2SA1514K
Q4 2SC2412
Q5 2SC2412
Q6 2SA1514K
Q7 2SA1037
Q8 2SC3906K
Q9 2SA1037
Q10 IRF9640
Q11 IRF640
D1 RLS4148
D2 RLS4148
D3 RLS4148
D4 RLS4148
D5 RLS4148
D6 RLS4148
Z1 DZD5.6-TB
Z2 DZD5.6-TB
Z3 DZD15-TB
Z4 DZD15-TB
Z5 DZD12-TB
Z6 DZD12-TB
R1 4.7K
R2 1K
R3 39K
R4 4.7M
R5 4.7K
R6 2.2K
R7 10K
R8 470
R9 10K
R10 2.7K
R11 1K
R12 4.7K
R13 2.2K
R14 3.3K
R15 3.3K
R16 2.2K
R17 47K
R20 47
R21 47
R22 10
R23 10
R24 300
R25 10K
R26 20K
R27 3.3K
R28 3.3K
R29 1K
R30 1K
R31 1.2K
R32 1.2K
R33 1.2K
R34 1.2K
R35 1.2K
R36 1.2K
R37 1.2K
R38 1.2K
R39 1.2K
R40 1.2K
R41 1.2K
R42 1.2K
R43 1.2K
R44 1.2K
R45 1.2K
R46 1.2K
C1 0.1uF/200V
C2 0.1uF
C3 0.1uF
C4 100pF
C5 22pF
C6 560pF
C7 0.1uF
C8 0.1uF
C9 0.1uF
C10 0.1u
C11 0.1uF
C12 0.1uF
C13 0.022uF
C14 0.1uF
C15 0.1uF
C16 10uF/100V/NP
C17 10uF/100V/NP
C18 0.1uF/100V
C19 0.1uF/100V
C20 0.1uF/100V
L1 120uh
L2 35uh